

REMARKS

Claims 1, 3 and 4 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Applicants respectfully disagree that the claims include new matter. Nevertheless, claim 1 has been amended in a readily apparent manner to overcome the rejection and expedite prosecution. Withdrawal of the rejection is respectfully requested.

Claims 1, 3 and 4 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Claim 1 has been amended to overcome this rejection. Withdrawal is respectfully requested.

Claims 1, 3 and 4 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Heinen et al. (US 6,415,835) in view of Tomioka et al. (US 5,211,779) or Williams (4,299,264). Applicants respectfully traverse this rejection because the cited references, alone or in combination, do not disclose or suggest the line portions provided in a wall face of the circumferential grooves and composed of ridges or recesses that are inclined from 10° to less than 45° with respect to the tire circumferential direction, as described in claim 1.

In the present invention, the particular range of inclination of the line portions create spiral or vortex in the water flowing through the grooves, thereby accelerating water flow. In this manner, a larger amount of water is discharged from the grooves, resulting in improved prevention of hydroplaning (see Figs. 6 and 7 and corresponding description).

Heinen relates to a pneumatic tire including grooves having peaks and valleys that follow imaginary lines that are skewed with respect to the median plane line or arc by an angle in the range of 45 degrees to 90 degrees. The reference teaches that the preferred angle is 90 degrees.


In contrast to the teachings of Heinen, the line portions of the present invention are inclined from 10° to less than 45° . As such, the claimed range is entirely outside the range disclosed in Heinen. Moreover, Heinen is concerned with reducing turbulent water flow containing eddies or vortices that form in the grooves to reduce skin friction drag (see Fig. 1 and corresponding description). The reference does not teach or suggest purposely creating a vortex or spiral water flow in the grooves to accelerate discharge of water from the grooves, as in the present invention. For these reasons, Heinen does not disclose or suggest at least the claimed line portions that are inclined from 10° to less than 45° with respect to the tire circumferential direction.

The Tomioka et al. and the Williams references are cited merely for disclosing the features of the claimed lateral grooves. As such, even if combined with Heinen, they still would not disclose or suggest the claimed line portions of the present invention.

For all of the above reasons, Applicants request reconsideration and allowance of the claimed invention. The Examiner should contact Applicants' undersigned attorney if a telephone conference would expedite prosecution.

Respectfully submitted,

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